

Appl. No. 09/813,795
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Remarks/Arguments

A Request for an Extension of Time is being made under separate cover on today's date.

Applicant requests that the application be amended as above described. Claims 1 - 6, 8 - 13, 16 and 17 remain in the application. Claims 1, 6, 8, 9, 16 and 17 have been amended. Claims 7, and 14 and 15 have been cancelled, and their subject matter incorporated into independent claims 1 and 9, respectively.

The Examiner objected to Figures 1, 2, 4 and 5 for failure to include sufficient labeling. Applicant has amended Figures 1, 2, 4 and 5 to include labeling in each of the blocks to aid in better understanding the subject matter of the claimed invention. Withdrawal of the objection to the drawings is requested.

The Examiner objected to the specification for failure to provide a detailed description of the operation of the circuits shown in Figures 6 and 7. Figures 5, 6 and 7 have been amended to add reference numerals. Applicant has provided a detailed description of Figures 6 and 7, making reference to the added reference numerals, which is submitted to be wholly inferable from the drawings as filed. No new matter has been added by these amendments. The missing phrase noted by the Examiner at page 7, line 17 has also been amended. Withdrawal of the objections to the specification is requested.

The Applicant thanks the Examiner for the care taken to identify informalities in the claims. The claims have been amended accordingly, and withdrawal of the informalities objections to the claims is requested.

The Examiner rejected claims 4, 8, 12 and 16 under 35 U.S.C. 112 as lacking an enabling description. Applicant respectfully traverses the rejection for the following reasons, and requests withdrawal of the rejections under 35 U.S.C. 112.

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Claims 4 and 12 are directed to determining the down-sampling factor based on channel condition as described at page 6, lines 14 - 18. One skilled in the art will appreciate that the maximum carrier frequency offset present in the signal received, the channel signal to noise ratio, and the operating symbol-rate are used to determine the down-sampling factor. Thus, in a sample embodiment, one of every N samples is used in the reduced symbol rate system. This allows for a simple implementation whereby a receiver simply uses a counter to determine which symbols are sent to the reduced symbol rate carrier recovery system for the purpose of processing to estimate the required frequency/phase correction. (This may be easily extended to the case where the effective symbol-rate seen by carrier recovery system is always constant, assuming a fixed data sampling-rate at the receiver Analog-to-Digital Converter (ADC)). The carrier recovery system processes the reduced symbol-rate data to estimate and correct the frequency and phase error in the signal. It should be noted that even though the carrier recovery system processes data at the reduced (down-sampled) rate with respect to the input data symbol-rate, the frequency/phase correction is applied to all the input samples at symbol-rate. This ensures that the all data samples at the output of the carrier recovery system are frequency/phase corrected. The reduced-rate phase-accumulator output is interpolated as shown in Figures 5, 6 and 7 to generate a frequency/phase correction at the symbol-rate.

Claims 8 and 16 are directed to reformatting the combined phase accumulator outputs and extrapolated outputs to generate the look up table addresses. Applicant submits that full enabling support for the reformatting is now provided in the detailed description.

The Applicant has amended claims 1 and 9 to include the limitations of claims 7, and 14 and 15, respectively, which the Examiner indicated were allowable. Therefore, Applicant submits that the rejections of claims 1 - 3, 5, 6, 9 - 11, 13 and 14 under 35 U.S.C. 103(a) are now moot.

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No fee is believed due for this submission. However, Applicant authorizes the Commissioner to debit any required fee from Deposit Account No. 501593. The Commissioner is further authorized to debit any additional amount required, and to credit any overpayment to the above-noted deposit account.

Applicant respectfully requests that this application now proceed to allowance.

Respectfully submitted,

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